

IB Biology Genetics Activity

The 'Werewolf Gene' and the Worlds Hairiest Teenager

The movie *Teenwolf* may just have been inspired by a real-life condition called **hypertrichosis**. In 2010 the [Guinness Book of World Records](#) awarded Supatra Sasuphan from Thailand the dubious title of "The World's Hairiest Teenager." She suffers from **hypertrichosis** and has long hair all over her face. Supatra is one of just 40 sufferers in the world today.

Hypertrichosis

Hypertrichosis has a dominant pattern of inheritance and has been linked to the X-chromosome. An affected female (carrying the hypertrichosis gene) has a 50% chance of passing it to her offspring. An affected male will pass this form of hypertrichosis to his daughters, but never the sons.



1 This image is in the public domain

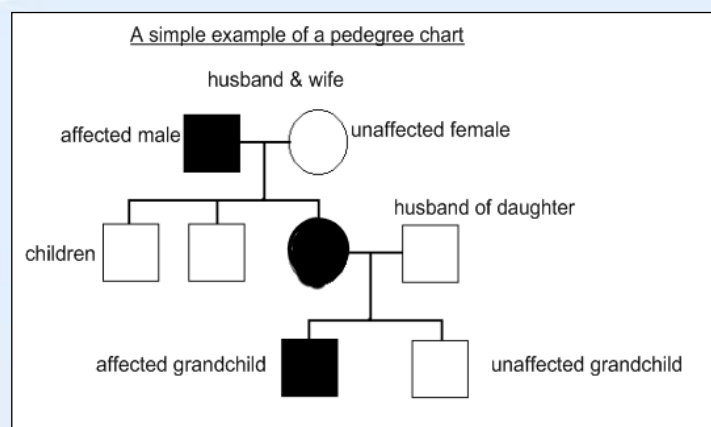
Watch the Introductory video: <http://youtu.be/EmAC3opiAAk>

Twenty-four of the known cases are found in one family in Mexico. Jesus Aceves "Chuy - the wolf boy" explains the cases in his family.

Read the interview about Chuy's family carefully. Starting with Chuy's mum and dad, use the information he tells us about his immediate family to draw a pedigree chart of the family. Use the correct symbols for male and female, and shade in any sufferers.

"My late great-uncle, Manuel The Wolf Man, was the first person in my family born with Hypertrichosis. I am the second person, followed by my sister Lili, and then my cousins Danny and Larry. Now we have more members being born with hypertrichosis, my daughter Carla, who is now ten, is one of them. Of course my wife, Susie wasn't surprised. Today there are 24 members in our family with hypertrichosis. My mother knew that most likely one of her children was going to be born with hypertrichosis. Out of five children only two of us have it. Lili and me, my brothers don't have it."

Further information: <http://exposureroom.com/rpmwolfboy/>



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Genetic Symbols for sex-linked inheritance

As a sex-linked gene is carried on the X-chromosome but not on the Y-chromosome inheritance is different in boys and girls. Girls have two X-chromosomes but boys inherit one X and one Y-chromosome.

- X^H = the allele for hypertrichosis
- X^h = the allele for normal hair
- Y = represents the Y-chromosome which does not carry the gene for hypertrichosis

Read the information box about the genetics of hypertrichosis. Using the genetic symbols for sex-linked inheritance, add genotypes to as many members of Chuy's family as you can.

Chuy's daughter Carla is worried about the future. She doesn't want any of her children to have the condition and end up working in the circus as her father has done all his life. She has decided to make an appointment to see a genetic counselor.

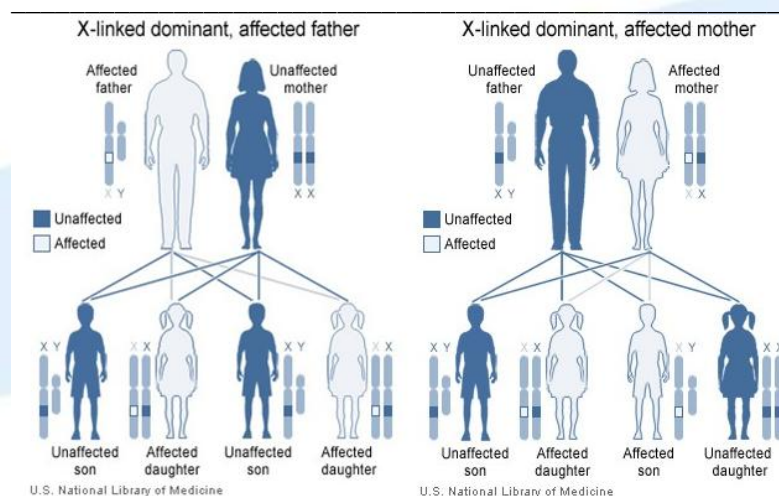
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Imagine you are the genetic councilor. Prepare an explanation for Carla explaining how hypertrichosis is caused and the probability that Carla will have children who also suffer from the condition. As the condition is so rare, and marriage to first cousins is illegal you can assume that the father will not suffer from the condition.

Pedegree charts often discover family tragedy that is never spoken about. Geneologists have to be very careful when interpreting information. Cases of children being looked after by people who are not their genetic parents are more common than you might think. Sometime the theory of the genetics is incorrect.

What is the unexplained part of this family tree ? Suggest an explanation.



Sex linked inheritance explained (Image source: Wikimedia Commons)